ERX-G41

Intel® G41 LGA775 socket for Intel® Core™ 2 Quad Micro-ATX Motherboard

User's Manual

4th Ed – 17 January 2013

Part No: E2047RX4100R

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THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

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2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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1. Getting Started

1.1 Safety Precautions

Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following parts have been shipped.

- 1 x Intel G41 Micro ATX Main board
  - 1 x CD-ROM containing the following:
  - User's Manual in PDF file
- Drivers
- 1 x COM1 Cable (9P/260mm)
- 1 x ATA66 IDE Cable (40P)
- 2 x SATA Cable Kit (SATA/Power)
- 1 x I/O Shield
- 1 x P/S2*2 to 2*4P pin head cable

If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	Comment
1st	January 2011	Initial Release
2nd	November 2011	● Packing list update ● Company information update
3rd	March 2012	● LVDS1
4th	January 2013	● Add BIOS Setup

1.4 Manual Objectives

This manual describes in detail the Avalue Technology ERX-G41 motherboard.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to interface with ERX-G41 series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

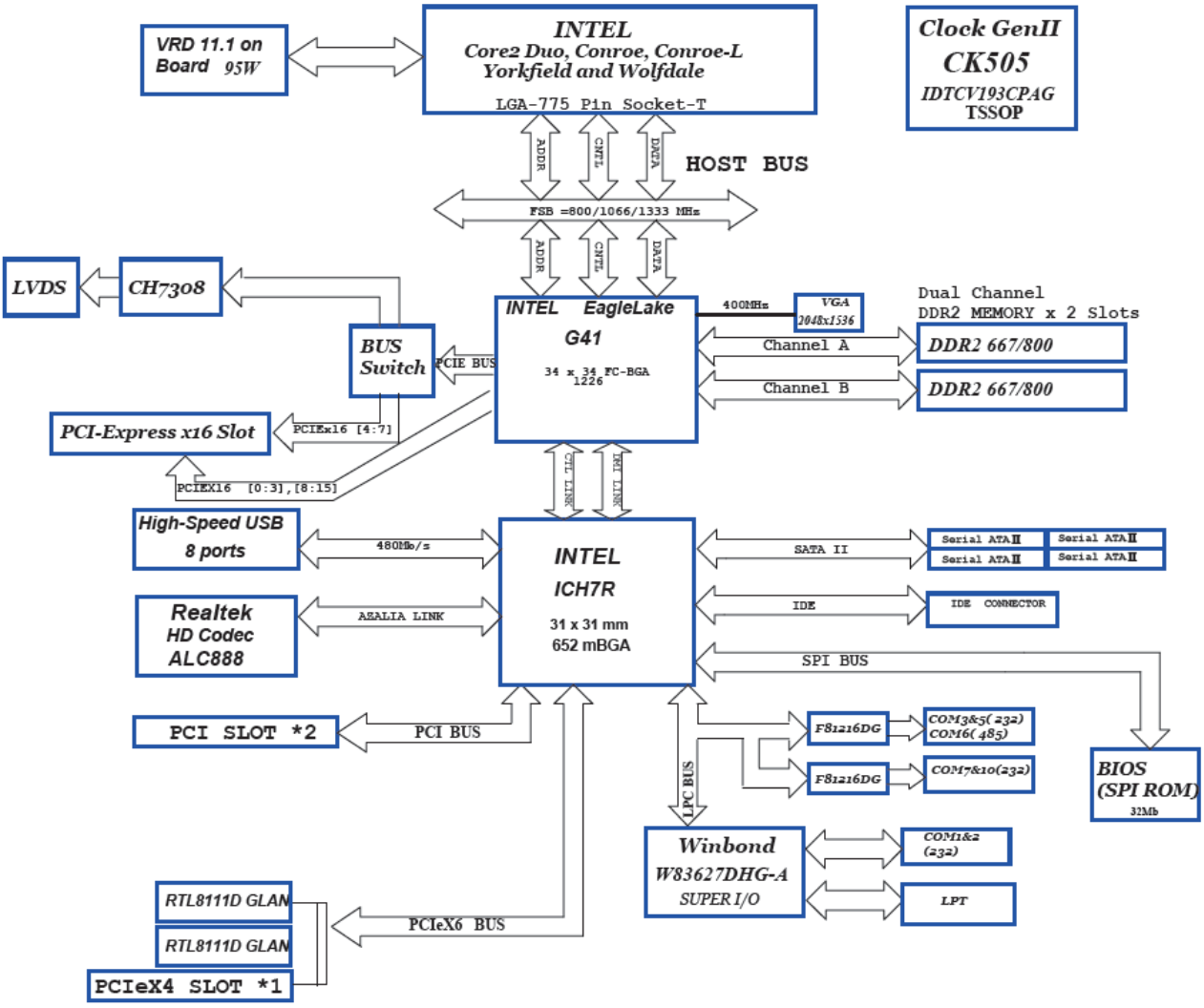
If you have any suggestions or find any errors concerning this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System	
CPU	Intel® LGA775 socket for Intel® Core™2 Quad / Core™2 Duo Processors Compatible with Intel® 06 processors Support Intel® next generation 45nm Multi-Core CPU
FSB	1333 / 1066 / 800 MHz
BIOS	AMI 32 Mb SPI
System Chipset	Intel G41/ICH7R
I/O Chipset	Winbond W83627DHG-A
Memory	2 x 240 pin DDR DIMM sockets supports DDRII memories 667/800 MHz up to 4GB
Watchdog Timer	Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
H/W Status Monitor	Monitoring temperatures, voltages, and cooling fan status. Auto throttling control when CPU overheats
Expansion Slots	1 x PCI-E x16 slot, 1x PCIe x4 slot 2 x PCI Slots (PCI 2.3 compliant)
DIO	16Bit
S3 / S4	Yes
TPM	TPM1.2 (InfineonR TPM chip 9635 TT 1.2 on board, optional)
System	
Wake up on LAN or Ring	WOL
Smart Fan Control	Yes, CPU FAN
Display	
Chipset	IntelR Graphics Media Accelerator X4500 integrated
Display Memory	Intel DVMT 4.0 supports up to 352 MB memory
Max. Resolution	2048 x 1536 bpp(@ 75Hz)
VGA	On board
LVDS	On board
DVI / HDMI	Support by ADD2 card
Secondary VGA	LVDS+VGA, ADD2+VGA/LVDS
Audio	
Audio Codec	RealtekR ALC888, 5.1 +2 with two independent Streaming
Audio Interface	Line-out, Line-in, Mic-in, SPDIF header
Ethernet	
LAN1	RealtekR RTL8111D GbE LAN
LAN2	RealtekR RTL8111D GbE LAN

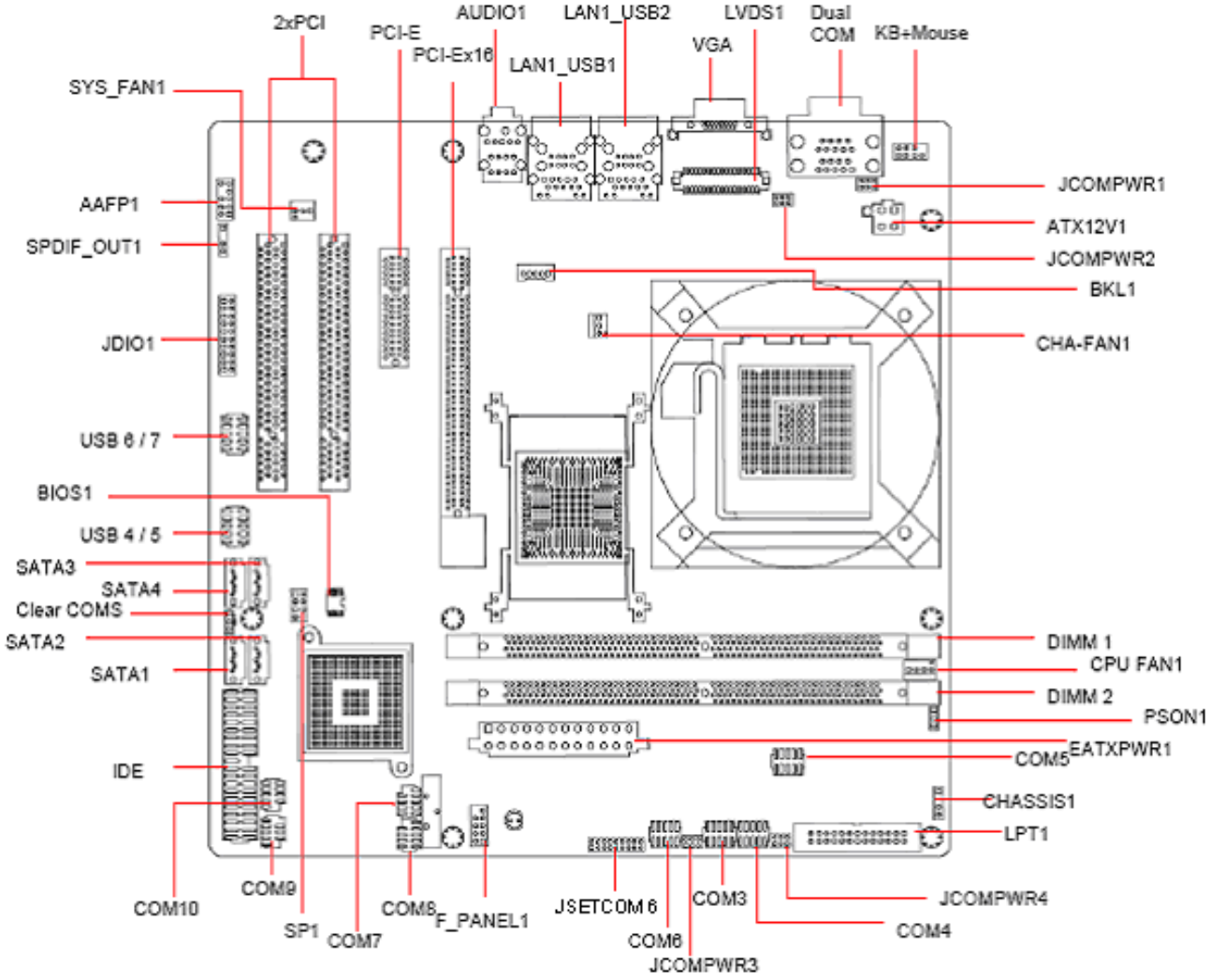
1.6 Architecture Overview – Block Diagram

The following block diagram shows the architecture and main components of ERX-G41.



2. Hardware Configuration

2.1 Product Overview



2.2 Installation Procedure

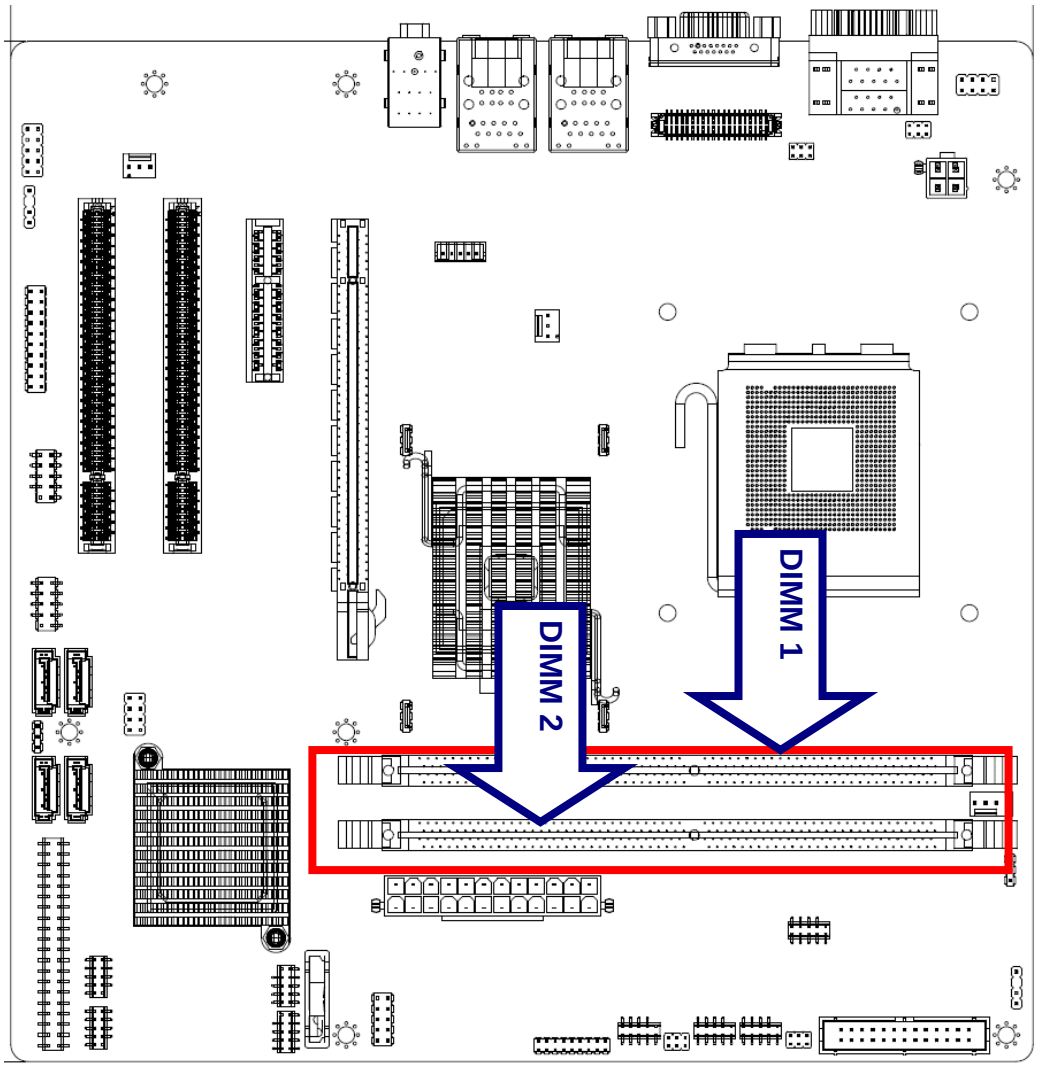
This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the DIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power supply to the board via the ATXPWR.
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "LOAD BIOS DEFAULTS" feature. The ***Integrated Peripheral Setup*** and the ***Standard CMOS Setup*** Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

Note: Make sure the heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause the system to hang or unstable

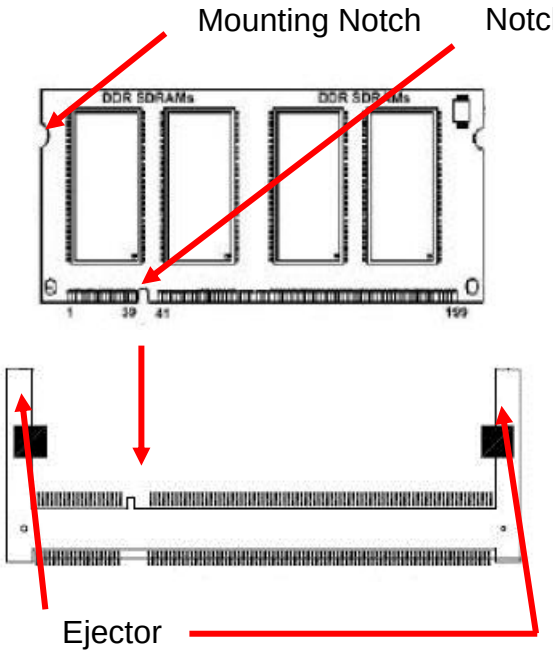
2.2.1 Main Memory

ERX-G41 provides 2 x 240 pin DDR DIMM sockets supports DDRII memories 667/800 MHz up to 4GB



Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the DIMM socket on the board.
- Hold two edges of the DIMM module carefully. Keep away from touching its connectors.
- Align the notch key on the module with the rib on the slot.
- Firmly press the module into the socket, it will automatically snap into the mounting notch. Do not force the DIMM module in with extra force as the DIMM module only fit in one direction.



240-pin DDR2 DIMM

- To remove the DIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the DIMM module.

Note:

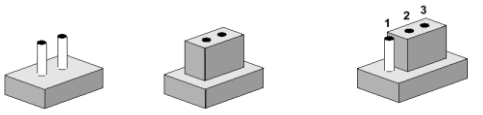
(1) Please do not change any DDR2 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

2.3 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



Open Closed Closed 2-3

The jumper settings are schematically depicted in this manual as follows:

Open Closed Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
CLRTC1	Clear CMOS	3 x 1 header, pitch 2.54mm
CHASSIS1	Chassis Intrusion Connector	4 x 1 header, pitch 2.54mm
JCOMPWR 1/2/3/4	Power Selector Ring /+5V/+12V	3 x 2 header, pitch 2.0mm
JSETCOM6	Serial Port 6 in RS 232/422/485	9 x 2 header, pitch 2.0mm

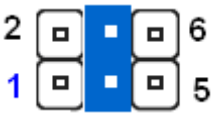
Connectors

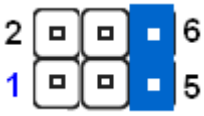
Label	Function	Note
COM1~2	Serial Port 1~2 connector	D-sub 9 pin, male
COM3~10	Serial Port 3~10 connector	5 x 2 header, pitch 2.00mm
AAFP1	Front Panel audio Connector	5 x 2 header, pitch 2.54mm
CHA_FAN1	Chassis Fan Connector	3 x 1 wafer, pitch 2.54mm
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
F_PANEL1	Front panel connector	5 x 2 header, pitch 2.54mm
JDIO1	General purpose I/O connector	10 x 2 header, pitch 2.54mm
LVDS1	LVDS connector	
SYS_FAN1	System fan connector	3 x 1 wafer, pitch 2.54mm
SPDIF_01	Digital Audio connector	4 x 1 header, pitch 2.54mm
USB 45/67	USB connector	5 x 2 header, pitch 2.54mm

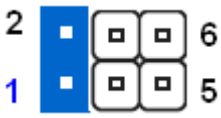
2.4 Setting Jumpers & Connectors

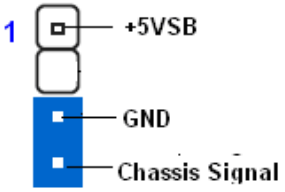
Jumpers

Label	Function	Note
CLRTC1	Clear CMOS	Normal * / Clear CMOS
JCOMPWR1, JCOMPWR2 JCOMPWR3 JCOMPWR4	RI/+5V/+12V Select	RI * / +5V / +12V
CHASSIS1	Chassis Intrusion Connector	
JSETCOM6	Serial Port 6 in RS 232/422/485	



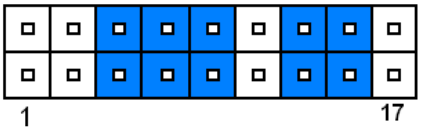




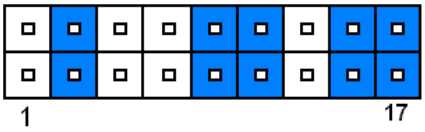


Signal	PIN	PIN	Signal
RXD6	1	2	RXD485
RXD6	3	4	RXD422
RXD6	5	6	RXD232
DDCD6#	7	8	TTXD6
JDDCD6#	9	10	JTTXD6
TXD485#	11	12	RXD485P
RRXD6	13	14	DDTR6#
JRRXD6	15	16	JDDTR6#
TXD485P	17	18	RXD485#

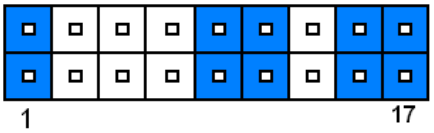
RS232

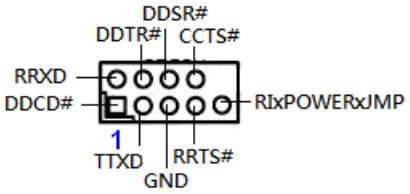
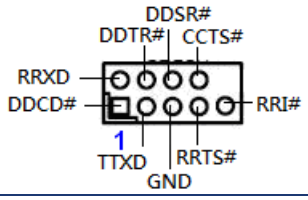
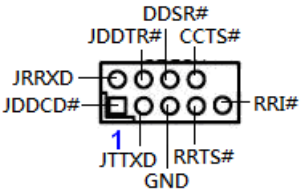
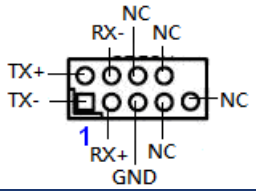
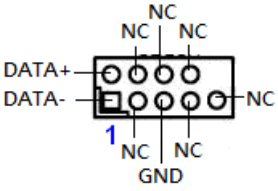
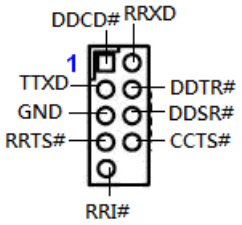
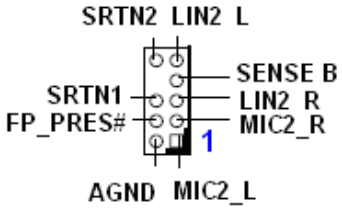
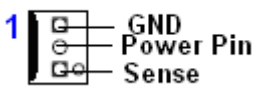


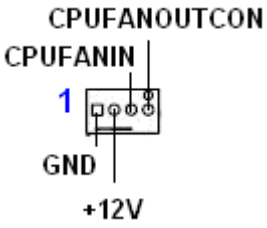
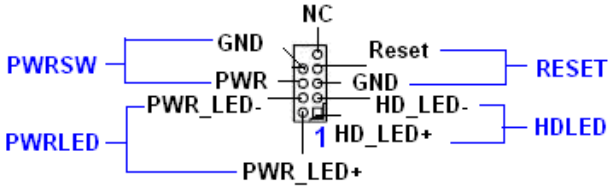
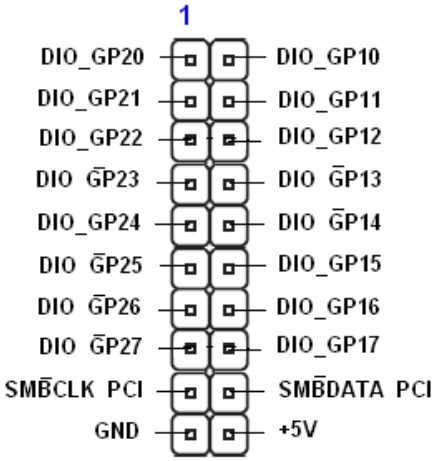
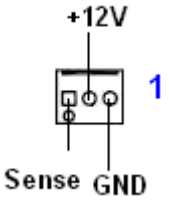
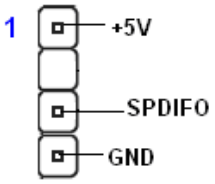
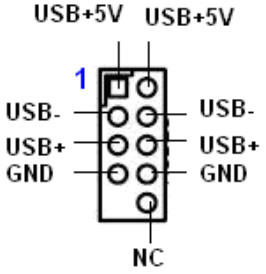
RS422



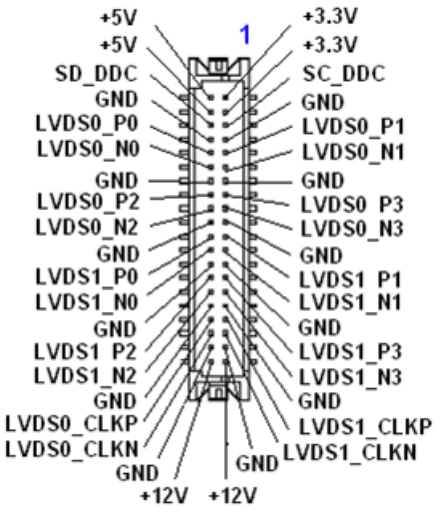
RS485



Connectors		
Label	**Function**	**Note**
COM3~4	**Serial Port 3~4 connector**	
COM5	**Serial Port 5 connector**	
COM6	**Serial Port 6 connector**	**RS232**  **RS422**  **RS485** 
COM7~10	**Serial Port 7~10 connector**	
AAFP1	**Front Panel Audio Connector**	
CHA_FAN1	**Chassis Fan Connector**	

CPU_FAN1	**CPU Fan Connector**	
F_PANEL1	**System Panel Connector**	
JDIO1	**Digital I/O Connector**	
SYS_FAN1	**System Fan Connector**	
SPDIF_01	**Digital Audio connector**	
USB45, **USB67,**	**USB 2.0 Connector**	

LVDS1	**LVDS Connector**



3. BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:
By pressing <Del> immediately after switching the system on, or
By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press F1 to Continue, DEL to enter SETUP

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**

  Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

  Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the CMOS settings which resets your system to its defaults.

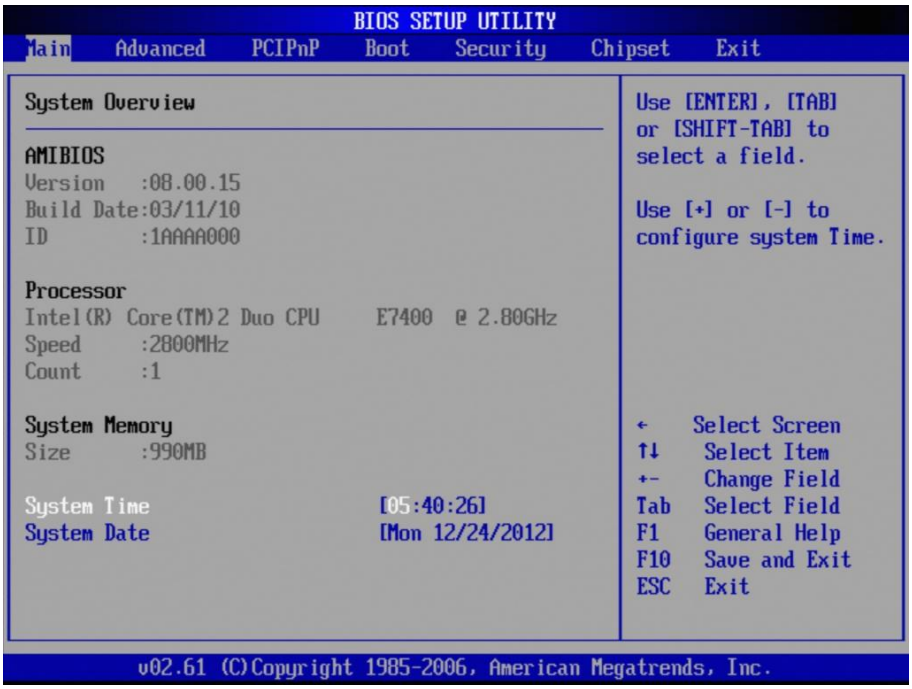
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



3.6.1.1 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.

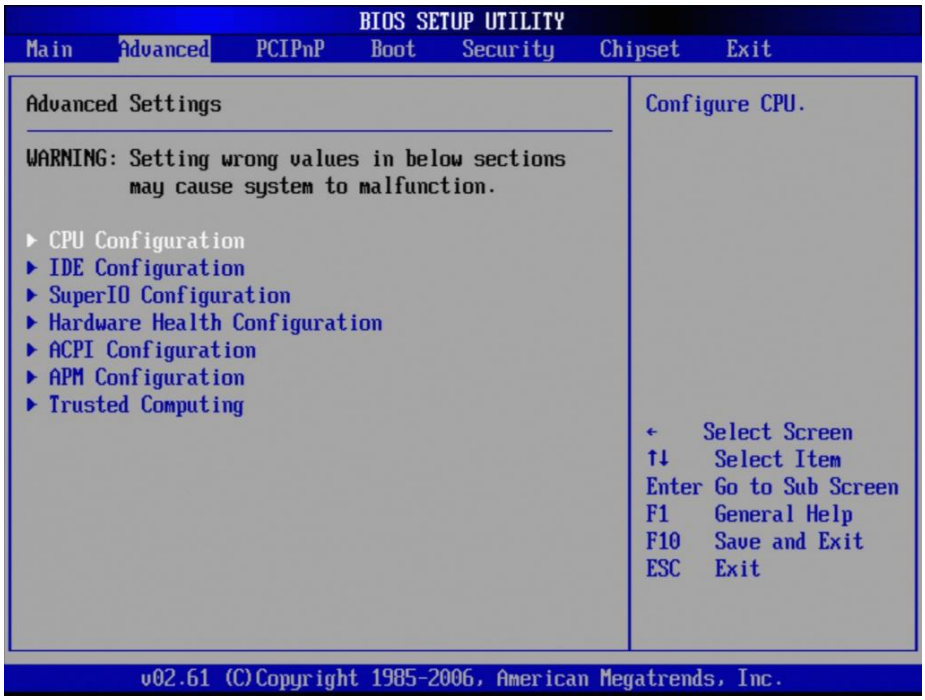
3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the day, month and year.

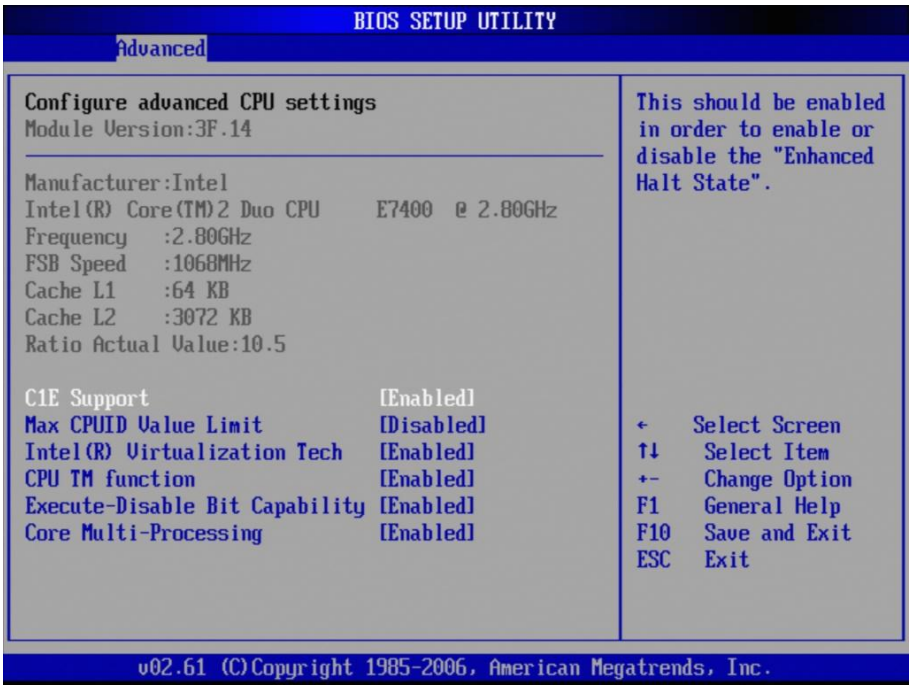
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

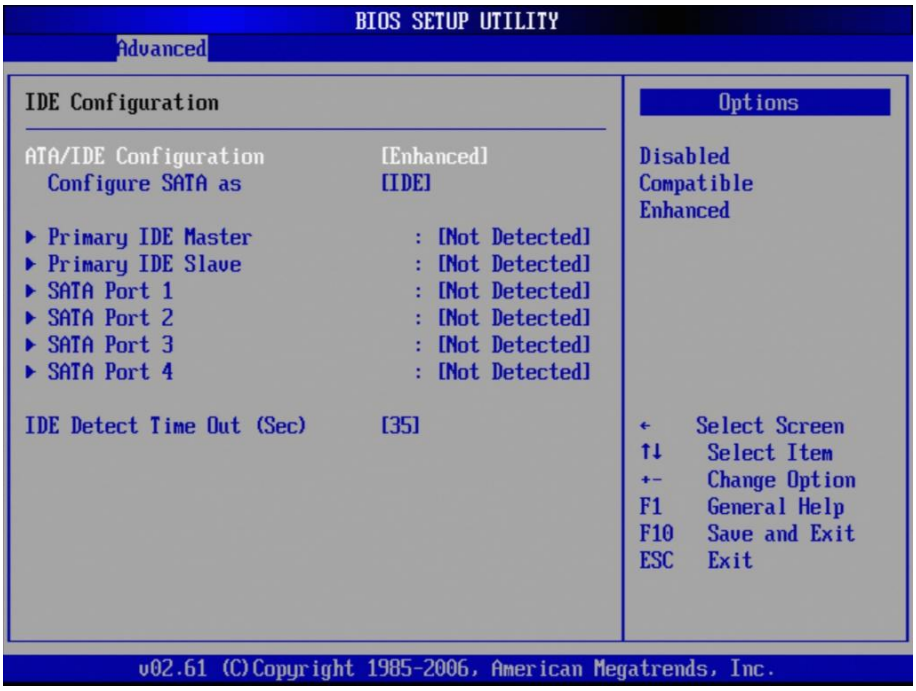


3.6.2.1 CPU Configuration



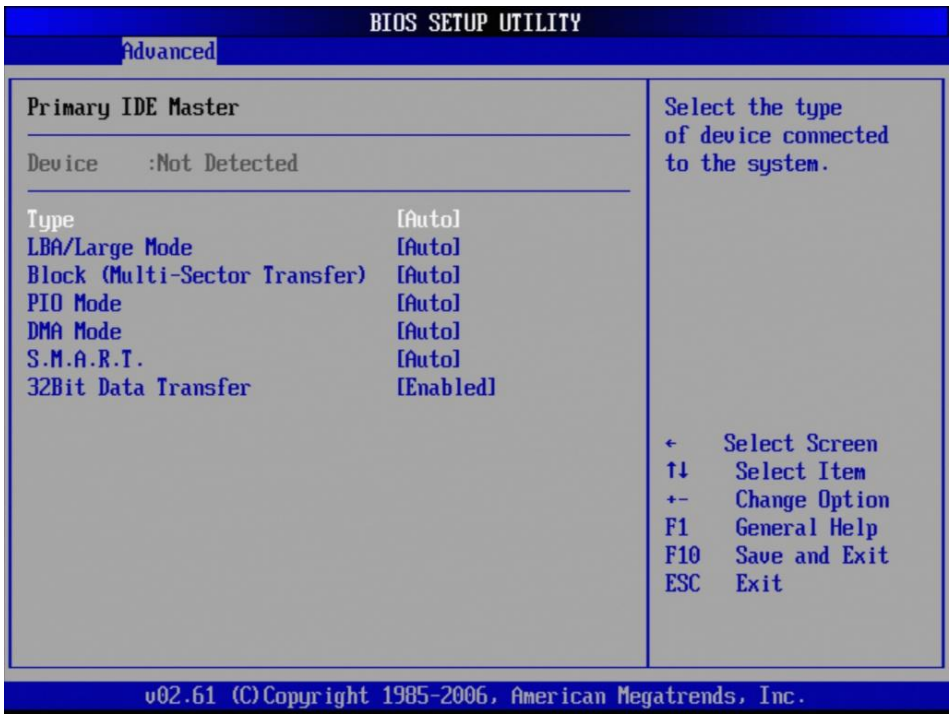
Item	Options	Description
C1E Support	Disabled Enabled **[Default]**	This should be enabled in order to enable or disable the “Enhanced Halt State”.
Max CPUID Value Limit	Disabled **[Default]** Enabled	Disable for Windows XP.
Intel® Virtualization Tech	Disabled Enabled **[Default]**	The choices of Intel® Virtualization Tech are Enable, Disabled.
CPU TM function	Disabled Enabled **[Default]**	For the processor its CPUID belows 0F41h.
Execute-Disable Bit Capability	Disabled Enabled **[Default]**	When disabled, force the XD feature flag to always return 0.
Core Multi-Processing	Disabled Enabled **[Default]**	When disabled, disable one execution core of each CPU die.

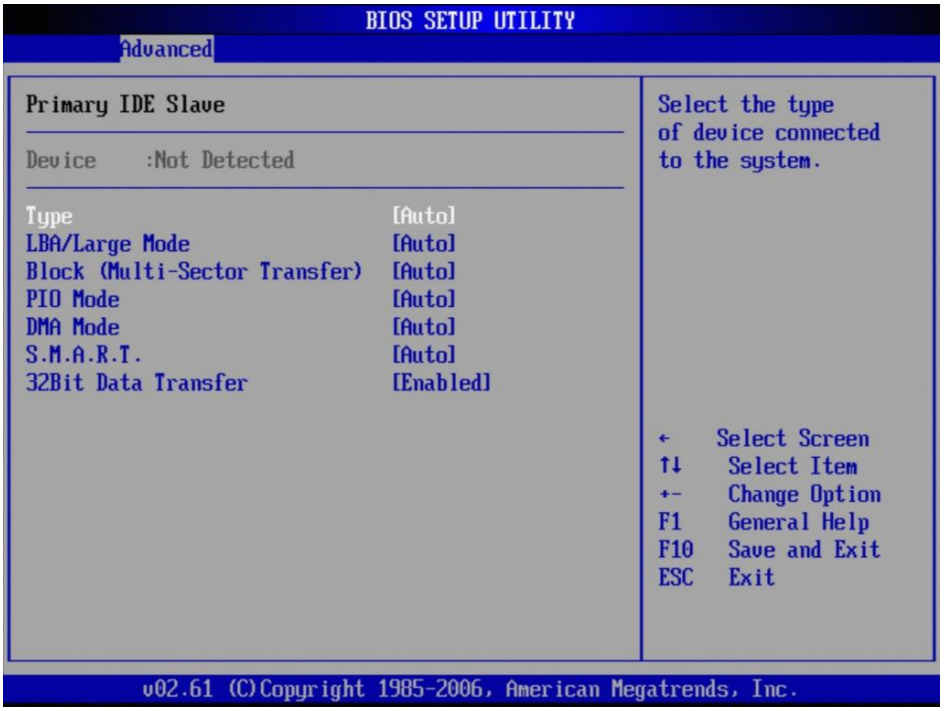
3.6.2.2 IDE Configuration



Item	Options	Description
ATA/IDE Configuration	Disabled Compatible Enhanced**[Default]**	Configure the IDE.
Configure SATA as	IDE**[Default]** RAID AHCI	Configure the IDE.
Primary IDE Master/Slave	Configure the IDE.	
SATA Port 1/2/3/4	Configure the IDE.	
IDE Detect Time Out (Set)	0/5/10/15/20/25/30/35**[Default]**	Select the time out value for detecting ATA/ATAPI device.

3.6.2.2.1 Primary IDE Master/Slave

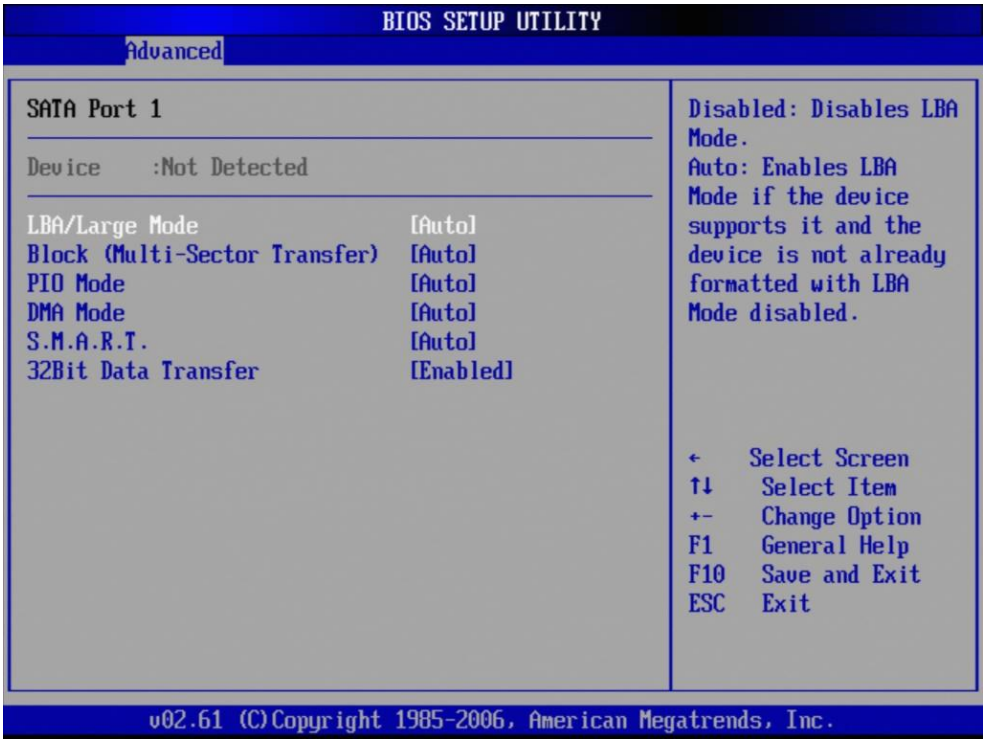




Item	Options	Description
Type	Not Installed Auto**[Default]** CD/DVD ARMD	Select the type of device connected to the system.
LBA/Large Mode	Disabled Auto**[Default]**	Disabled: Disables LBA Mode: Auot: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode

		disabled.
Block (Multi-Sector Transfer)	Disabled Auto**[Default]**	Disabled: The Data transfer from and to the device occurs one sector at a time. Auto: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.
PIO Mode	Auto**[Default]** 0 1 2 3 4	Select PIO Mode.
DMA Mode	Auto**[Default]** SWDMAn MWDMAn UDMAn	Select DMA Mode. Auto: Auto detected SWDMAn: SingleWordDMAn MWDMAn:MultiWordDMAn UDMAn:UltraDMAn
S.M.A.R.T	Auto**[Default]** Disabled Enabled	S.M.A.R.T stands for Self-Monitoring, Analysis and Reporting Technology.
32Bit Data Transfer	Disabled Enabled**[Default]**	Enable/Disable 32-bit Data Transfer.

3.6.2.2.2 SATA Port 1/2/3/4


BIOS SETUP UTILITY
Advanced
SATA Port 1
Device :Not Detected
LBA/Large Mode [Auto]
Block (Multi-Sector Transfer) [Auto]
PIO Mode [Auto]
DMA Mode [Auto]
S.M.A.R.T. [Auto]
32Bit Data Transfer [Enabled]
Disabled: Disables LBA Mode.
Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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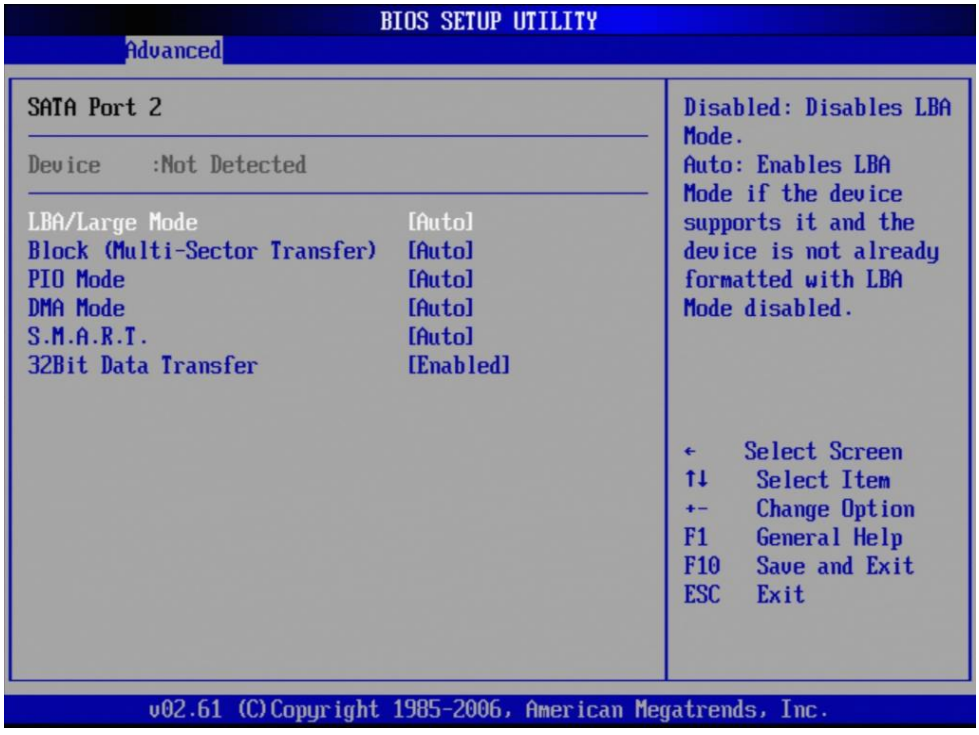
BIOS SETUP UTILITY
Advanced
SATA Port 2
Device :Not Detected
LBA/Large Mode [Auto]
Block (Multi-Sector Transfer) [Auto]
PIO Mode [Auto]
DMA Mode [Auto]
S.M.A.R.T. [Auto]
32Bit Data Transfer [Enabled]
Disabled: Disables LBA Mode.
Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

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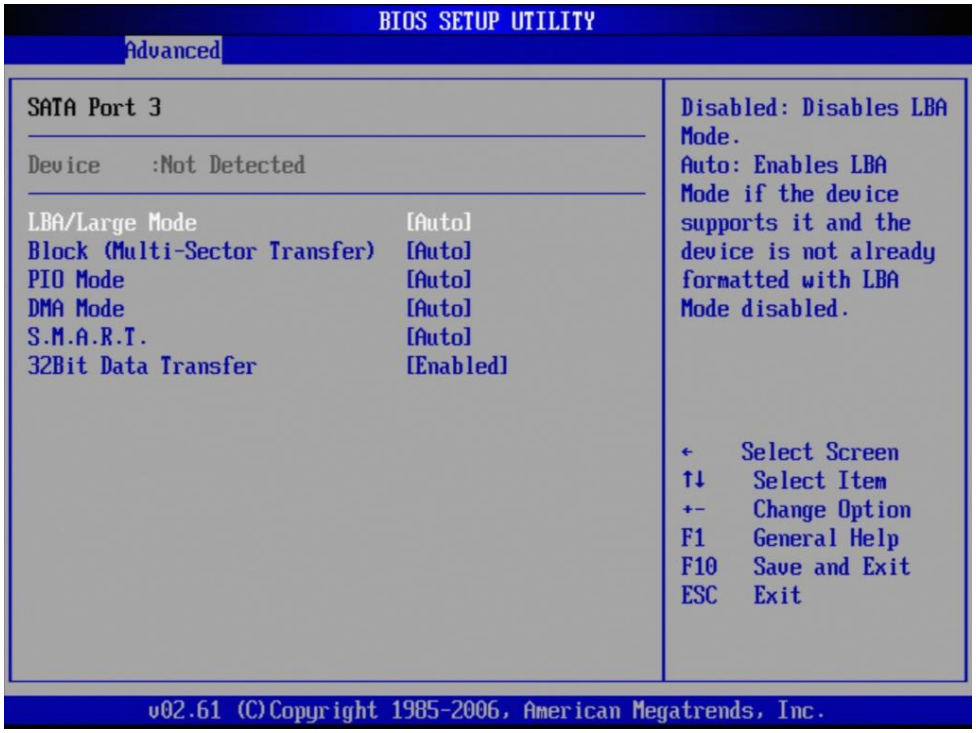
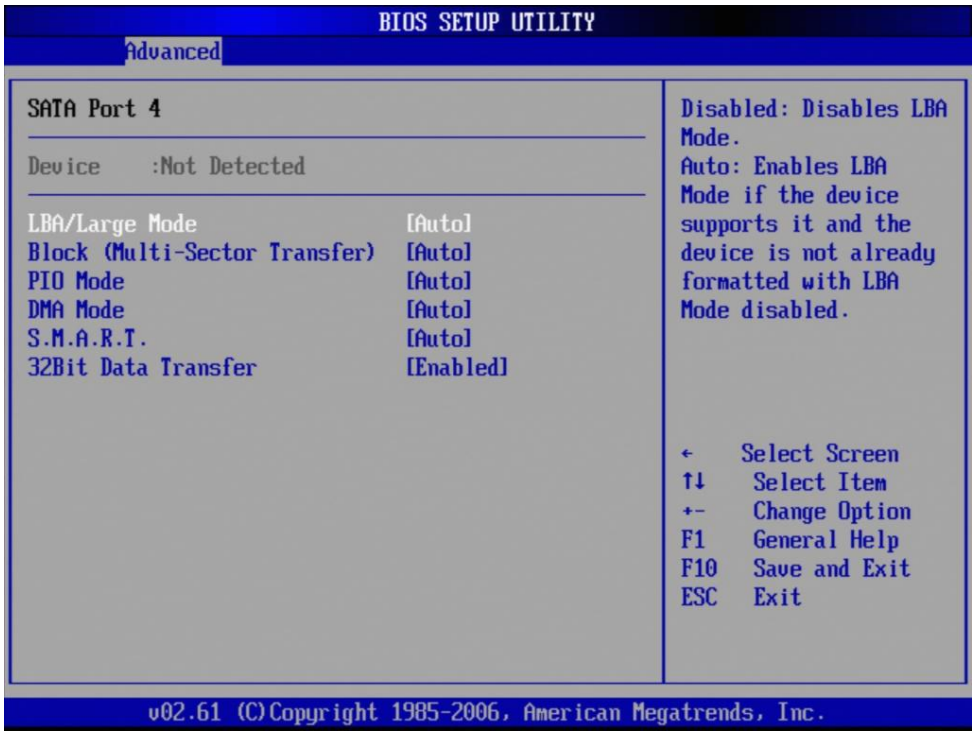

BIOS SETUP UTILITY
Advanced
SATA Port 3
Device :Not Detected
LBA/Large Mode [Auto]
Block (Multi-Sector Transfer) [Auto]
PIO Mode [Auto]
DMA Mode [Auto]
S.M.A.R.T. [Auto]
32Bit Data Transfer [Enabled]
Disabled: Disables LBA Mode.
Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.


BIOS SETUP UTILITY
Advanced
SATA Port 4
Device :Not Detected
LBA/Large Mode [Auto]
Block (Multi-Sector Transfer) [Auto]
PIO Mode [Auto]
DMA Mode [Auto]
S.M.A.R.T. [Auto]
32Bit Data Transfer [Enabled]
Disabled: Disables LBA Mode.
Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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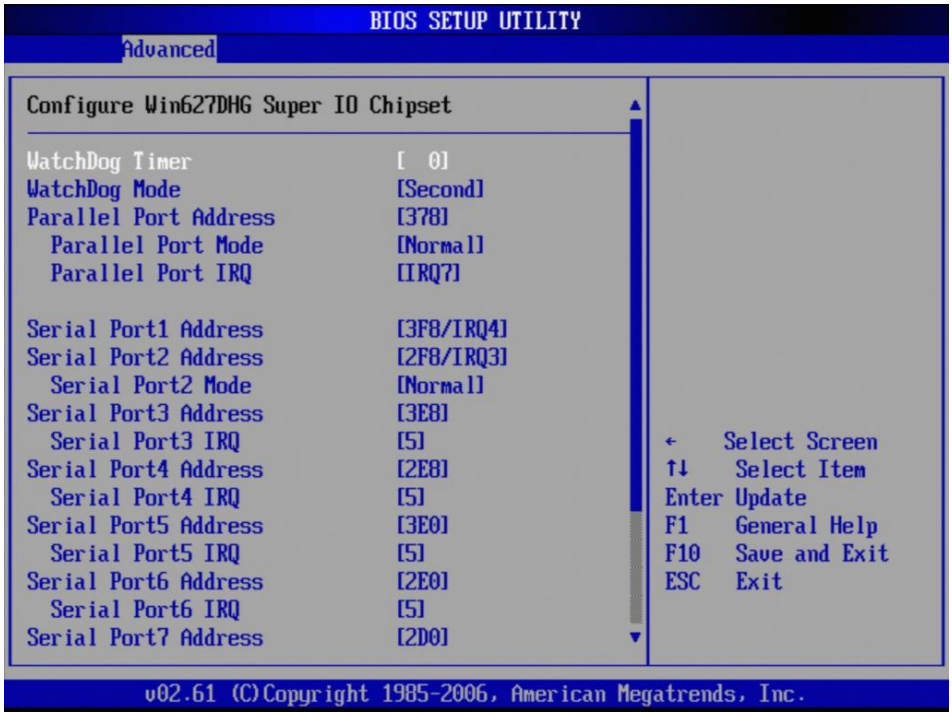
Item	Options	Description
LBA/Large Mode	Disabled Auto**[Default]**	Disabled: Disables LBA Mode: Auot: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.

Block (Multi-Sector Transfer)	Disabled Auto**[Default]**	Disabled: The Data transfer from and to the device occurs one sector at a time. Auto: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.
PIO Mode	Auto**[Default]** 0 1 2 3 4	Select PIO Mode.
DMA Mode	Auto**[Default]** SWDMAn MWDMAn UDMAn	Select DMA Mode. Auto: Auto detected SWDMAn: SingleWordDMAn MWDMAn:MultiWordDMAn UDMAn:UltraDMAn
S.M.A.R.T	Auto**[Default]** Disabled Enabled	S.M.A.R.T stands for Self-Monitoring, Analysis and Reporting Technology.
32Bit Data Transfer	Disabled Enabled**[Default]**	Enable/Disable 32-bit Data Transfer.

3.6.2.3 SuperIO Configuration

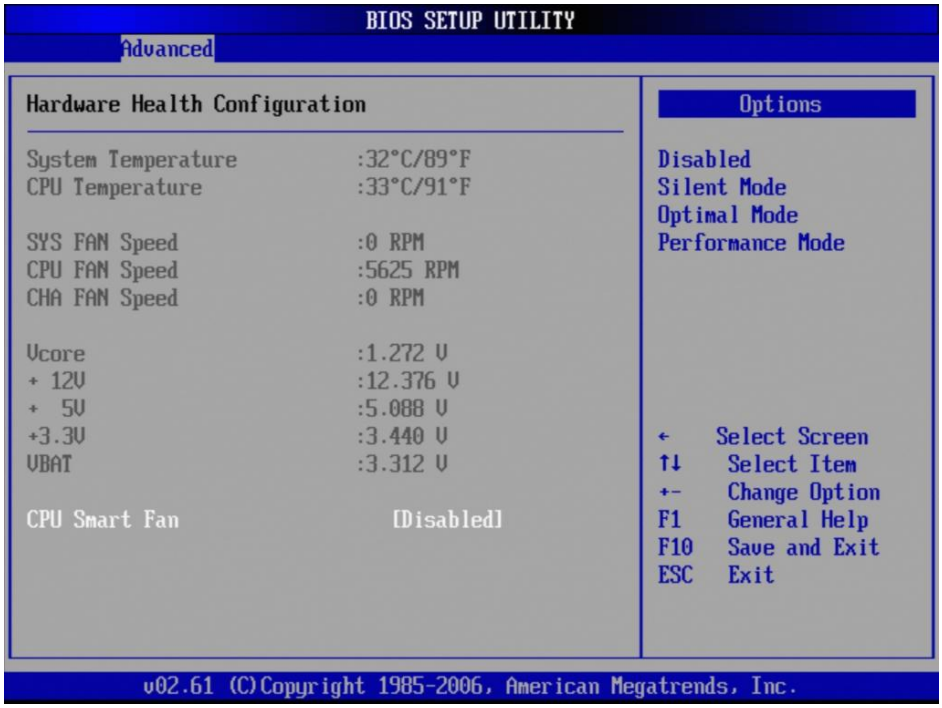


Item	Options	Description
WatchDog Timer	Configure SuperIO.	
WatchDog Mode	Second**[Default]** Minute	Configure SuperIO.
Parallel Port Address	Disabled	Allows BIOS to Select Parallel Port

	378**[Default]** 278 3BC	Base Addresses.
Parallel Port Mode	Normal**[Default]** Bi-Directional ECP EPP ECP & EPP	Allows BIOS to Select Parallel Port mode.
Parallel Port IRQ	IRQ5 IRQ7**[Default]**	Allows BIOS to Select Parallel Port IRQ.
Serial Port1 Address	Disabled 3F8/IRQ4**[Default]** 2F8/IRQ3 3E8/IRQ4 2E8/IR3	Allows BIOS to Select Serial Port1 Base Addresses.
Serial Port2 Address	Disabled 3F8/IRQ4 2F8/IRQ3**[Default]** 3E8/IRQ4 2E8/IR3	Allows BIOS to Select Serial Port2 Base Addresses.
Serial Port2 Mode	Normal**[Default]** IrDA ASK IR	Allows BIOS to Select mode for Serial Port2.
Serial Port3 Address	Disabled 3E8**[Default]** 2E8 3E0 2E0	Allows BIOS to Select Serial Port3 Base Addresses.
Serial Port3 IRQ	5**[Default]** 10	Allows BIOS to Select Serial Port3 IRQ.
Serial Port4 Address	Disabled 3E8 2E8**[Default]** 3E0 2E0	Allows BIOS to Select Serial Port4 Base Addresses.
Serial Port4 IRQ	5**[Default]** 10	Allows BIOS to Select Serial Port4 IRQ.
Serial Port5 Address	Disabled 3E8 2E8 3E0**[Default]** 2E0	Allows BIOS to Select Serial Port5 Base Addresses.
Serial Port5 IRQ	5**[Default]** 10	Allows BIOS to Select Serial Port5 IRQ.
Serial Port6 Address	Disabled 3E8 2E8 3E0 2E0**[Default]**	Allows BIOS to Select Serial Port6 Base Addresses.
Serial Port6 IRQ	5**[Default]** 10	Allows BIOS to Select Serial Port6 IRQ.

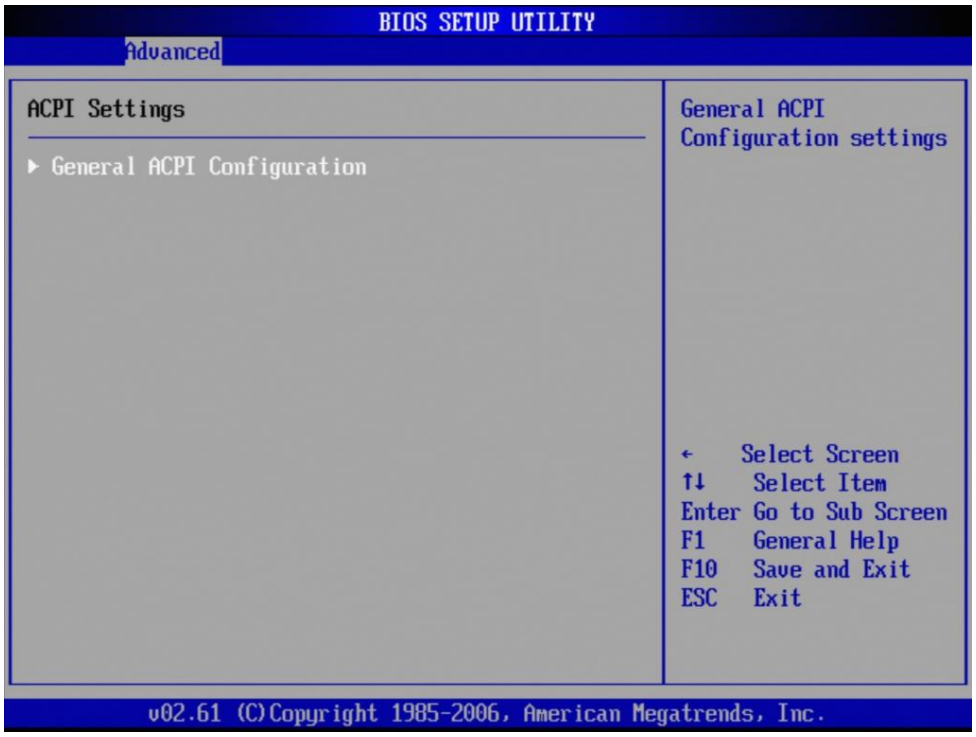
Serial Port7 Address	Disabled 2D0**[Default]** 2D8 2C0 2C8	Allows BIOS to Select Serial Port7 Base Addresses.
Serial Port7 IRQ	5 10**[Default]**	Allows BIOS to Select Serial Port7 IRQ.
Serial Port8 Address	Disabled 2D0 2D8**[Default]** 2C0 2C8	Allows BIOS to Select Serial Port8 Base Addresses.
Serial Port8 IRQ	5 10**[Default]**	Allows BIOS to Select Serial Port8 IRQ.
Serial Port9 Address	Disabled 2D0 2D8 2C0**[Default]** 2C8	Allows BIOS to Select Serial Port9 Base Addresses.
Serial Port9 IRQ	5 10**[Default]**	Allows BIOS to Select Serial Port9 IRQ.
Serial Port10 Address	Disabled 2D0 2D8 2C0 2C8**[Default]**	Allows BIOS to Select Serial Port10 Base Addresses.
Serial Port10 IRQ	5 10**[Default]**	Allows BIOS to Select Serial Port10 IRQ.

3.6.2.4 Hardware Health Configuration



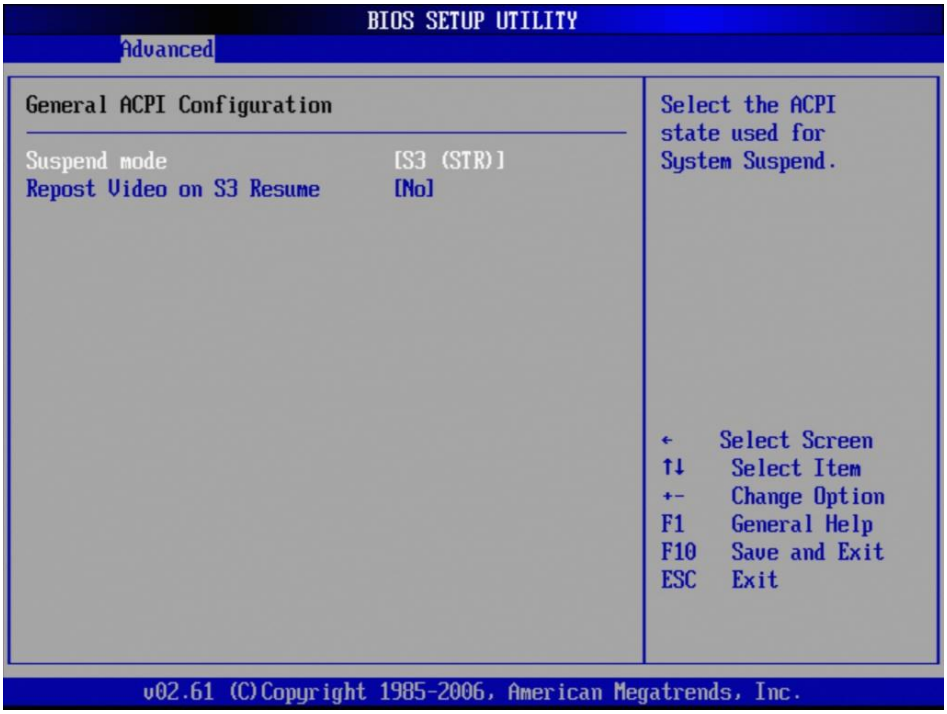
Item	Options	Description
CPU Smart Fan	Disabled**[Default]** Silent Mode Optimal Mode Performance Mode	Configure/monitor.

3.6.2.5 APCI Settings



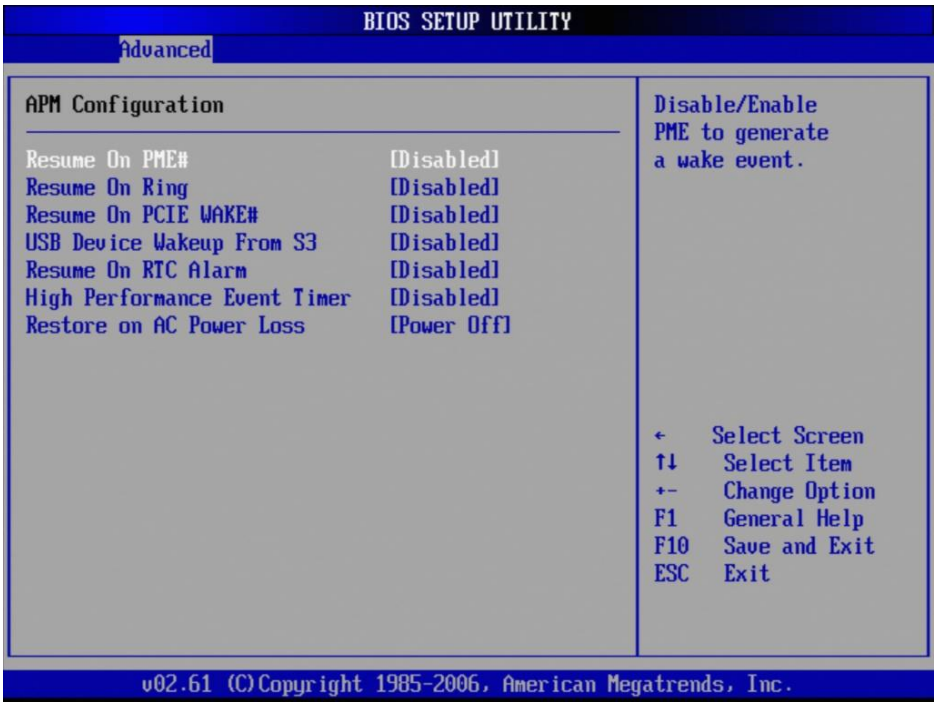
Item	Description
ACPI Settings	Section for Advanced.

3.6.2.5.1 Hardware Health Configuration



Item	Options	Description
Suspend mode	S1 (POS) S3 (STR)**[Default]** Auto	Select the ACPI state used for System Suspend.
Repost Video on S3 Resume	No**[Default]** Yes	Determines whether to invoke VGA BIOS post on S3/STR resume.

3.6.2.6 APM Configuration


BIOS SETUP UTILITY
Advanced
APM Configuration
Resume On PME# [Disabled]
Resume On Ring [Disabled]
Resume On PCIE WAKE# [Disabled]
USB Device Wakeup From S3 [Disabled]
Resume On RTC Alarm [Disabled]
High Performance Event Timer [Disabled]
Restore on AC Power Loss [Power Off]
Disable/Enable PME to generate a wake event.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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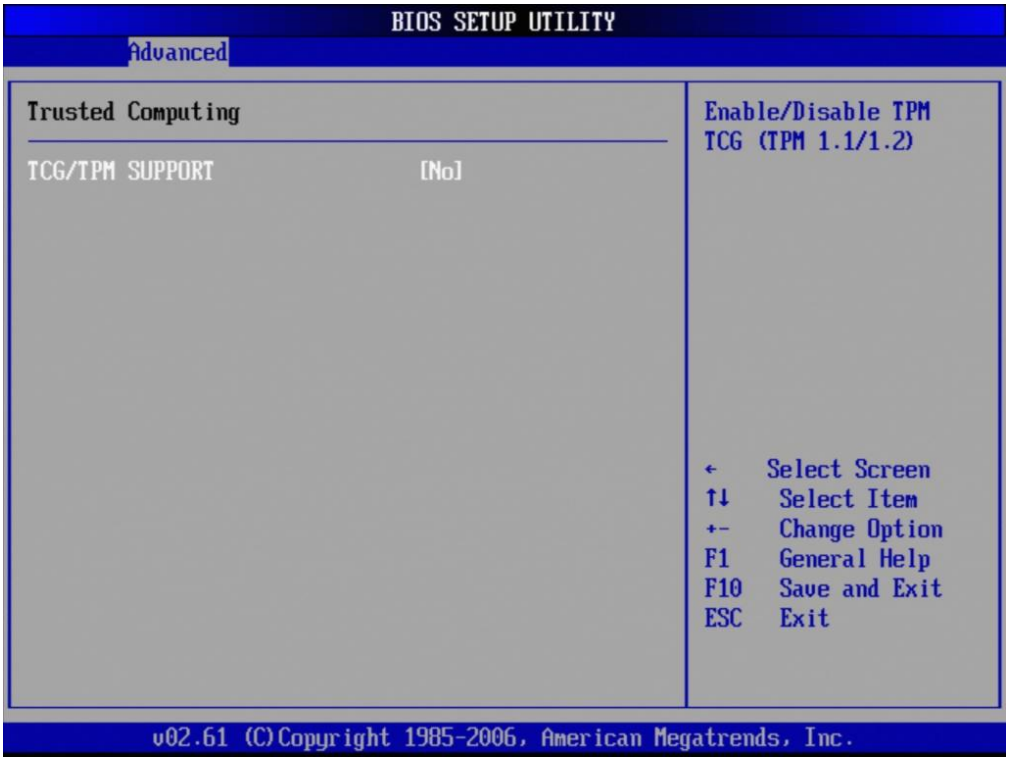
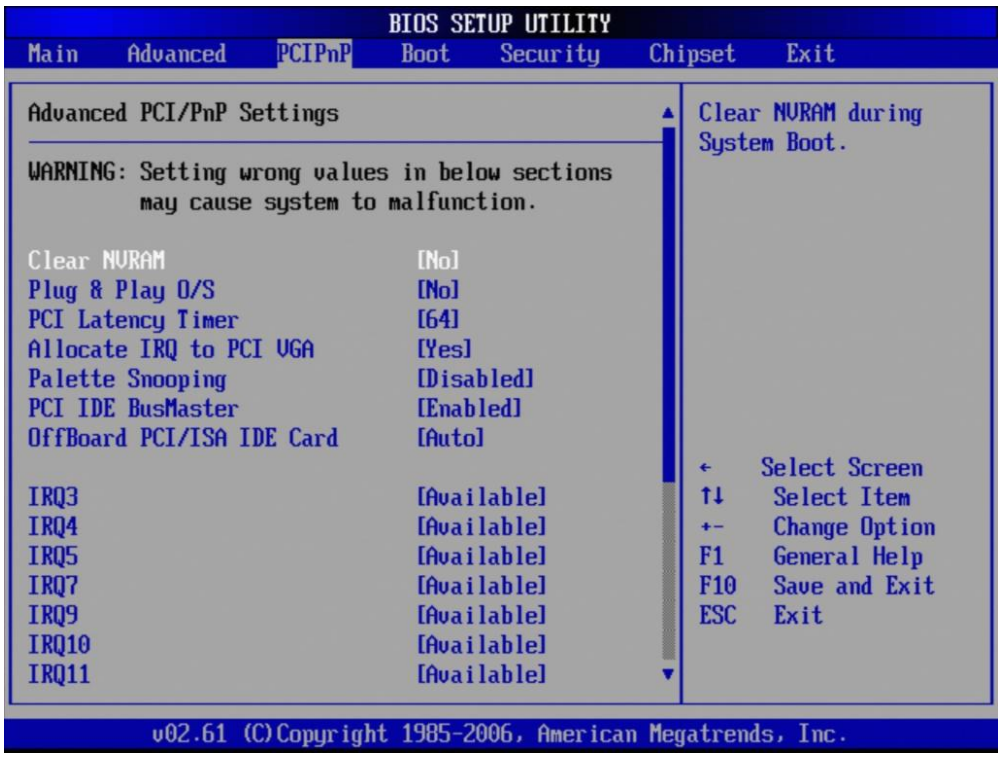
Item	Options	Description
Resume On PME#	Disabled**[Default]**, Enabled	Disable/Enable PME to generate a wake event.
Resume On Ring	Disabled**[Default]**, Enabled	Disable/Enable RI to generate a wake event.
Resume On PCIE WAKE#	Disabled**[Default]**, Enabled	Disable/Enable PCIE to generate a wake event.
USB Device Wakeup From S3	Disabled**[Default]**, Enabled	Disable/Enable USB Device Wakeup From S3.
Resume On RTC Alarm	Disabled**[Default]**, Enabled	Disable/Enable RTC to generate a wake event.
High Performance Event Timer	Disabled**[Default]**, Enabled	Disable/Enable.
Resume on AC Power Loss	Power Off**[Default],** Power On Last State	

3.6.2.7 Trusted Computing



Item	Options	Description
TCG/TPM SUPPORT	No**[Default]**, Yes	Enable/Disable TPM TCG(TPM1.1/1.2)

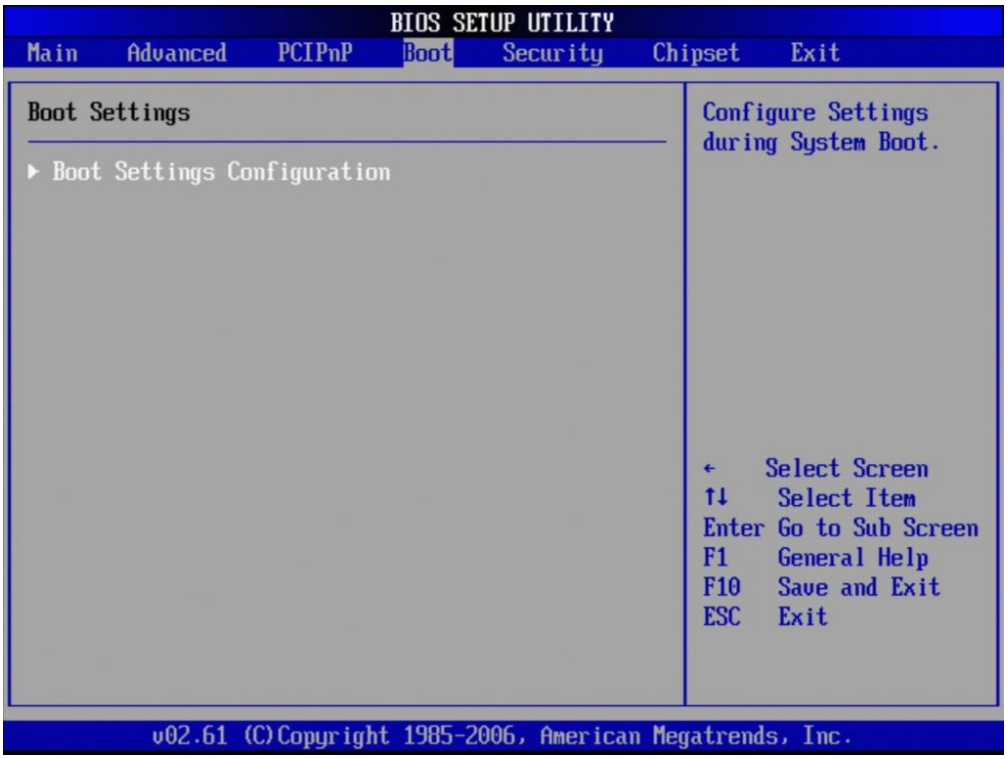
3.6.3 PCIPnP



Item	Options	Description
Clear NVRAM	No**[Default]**, Yes	Clear NVRAM during System Boot.
Plug & Play O/S	No**[Default]**, Yes	NO: lets the BIOS configure all the devices in the system. YES: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
PCI Latency Timer	32/64**[Default]/**96/128/ 160/192/224/248	Value in units of PCI clocks for PCI device latency timer register.
Allocate IRQ to PCI VGA	Yes**[Default]**, No	YES: Assigns IRQ to PCI VGA cards if card requests IRQ. NO: Does not assign IRQ to PCI VGA card even if card requests an IRQ.
Palette Snooping	Disabled**[Default]**, Enabled	ENABLED: informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.
PCI IDE BusMaster	Disabled**[Default]**, Enabled	ENABLED: BIOS uses PCI busmastering for reading / writing to IDE drives.
OffBoard PCI/ISA IDE Card	Auto**[Default]**, PCI Slot1 PCI Slot2	Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. AUTO: Works for most PCI IDE cards.

	PCI Slot3 PCI Slot4 PCI Slot5 PCI Slot6	
IRQ3/4/5/7/9/10/11	Available**[Default],** Reserved	Available: Specified IRQ is available to be used by PCI/Pnp devices. Reserved: Specified IRQ is reserved for use by Legacy ISA devices.

3.6.4 Boot



3.6.4.1 Boot Settings Configuration

BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
Bootup Num-Lock [On]
Wait For 'F1' If Error [Enabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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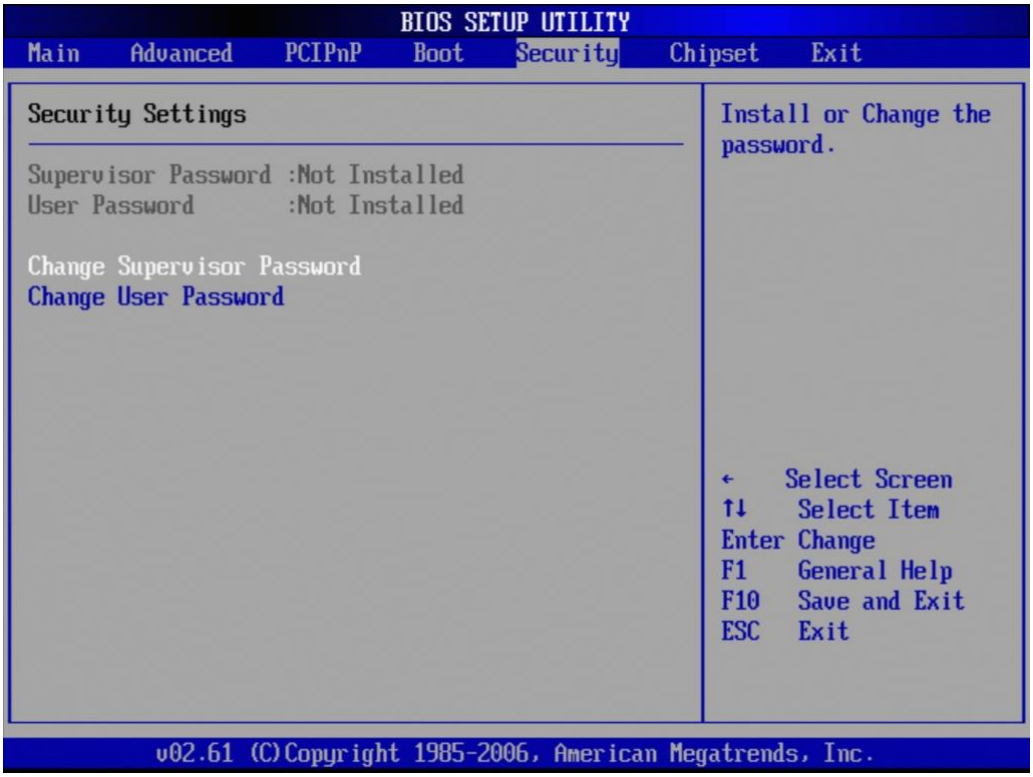
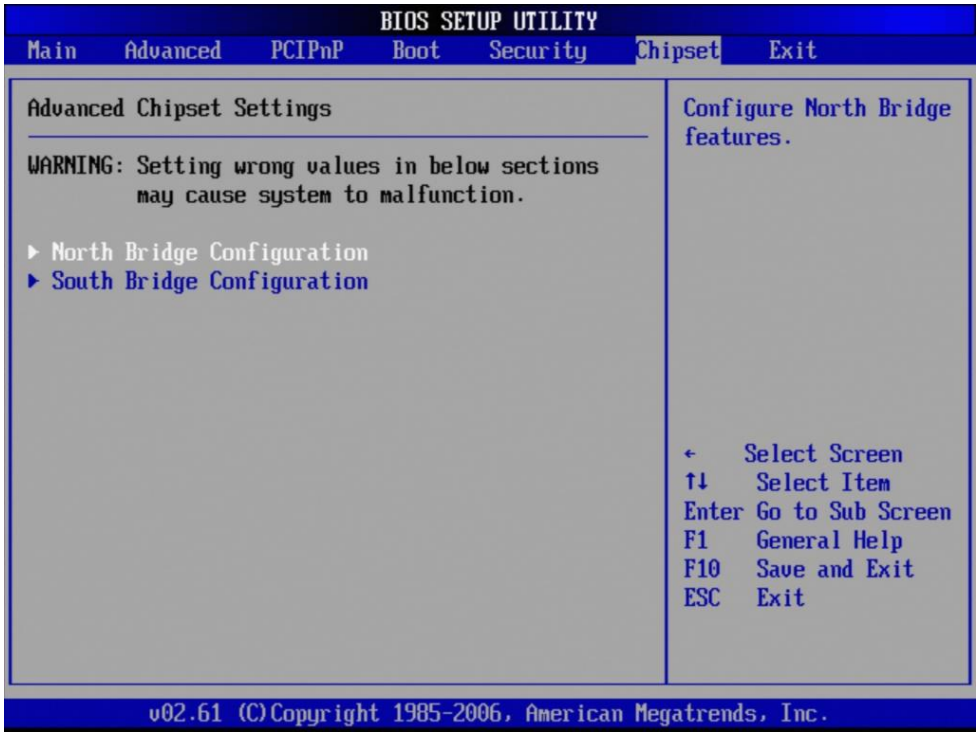
Item	Option	Description
Quick Boot	Disabled Enabled**[Default]**,	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Quiet Boot	Disabled**[Default]**, Enabled	Disabled: Displays normal POST messages. Enabled: Displays OEM Logo instead of POST messages.
Bootup Num-Lock	Off On**[Default]**,	Select Power-on state for Numlock.
Wait For 'F1' If Error	Disabled Enabled**[Default]**,	Wait for F1 key to be pressed if error occurs.

3.6.5 Security



Item	Option	Description
Change Supervisor Password	Install or Change the password.	
Change User Password	Install or Change the password.	

3.6.6 Chipset


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections
may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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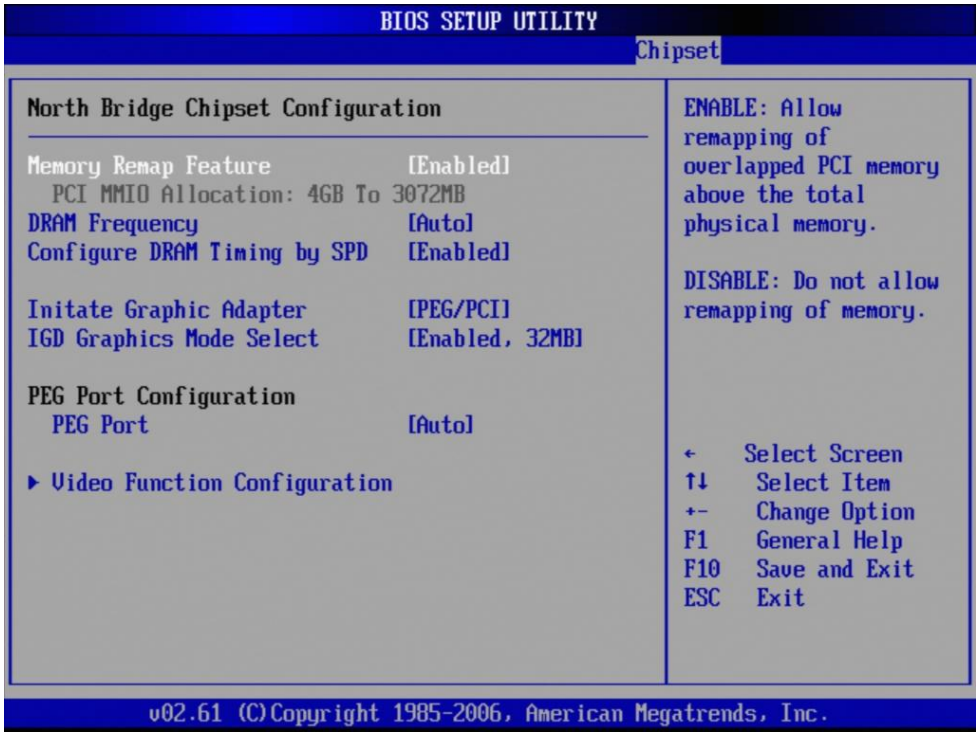
3.6.6.1 North Bridge Chipset Configuration


BIOS SETUP UTILITY
Chipset
North Bridge Chipset Configuration
Memory Remap Feature [Enabled]
PCI MMIO Allocation: 4GB To 3072MB
DRAM Frequency [Auto]
Configure DRAM Timing by SPD [Enabled]
Initate Graphic Adapter [PEG/PCI]
IGD Graphics Mode Select [Enabled, 32MB]
PEG Port Configuration
PEG Port [Auto]
Video Function Configuration
ENABLE: Allow remapping of overlapped PCI memory above the total physical memory.
DISABLE: Do not allow remapping of memory.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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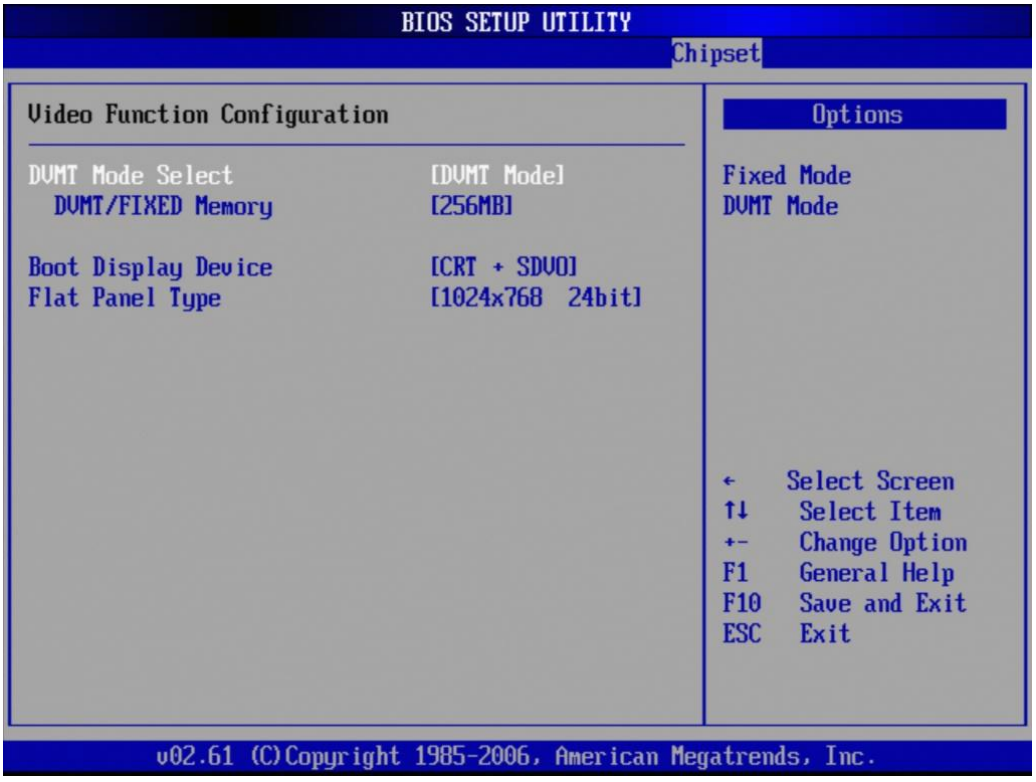
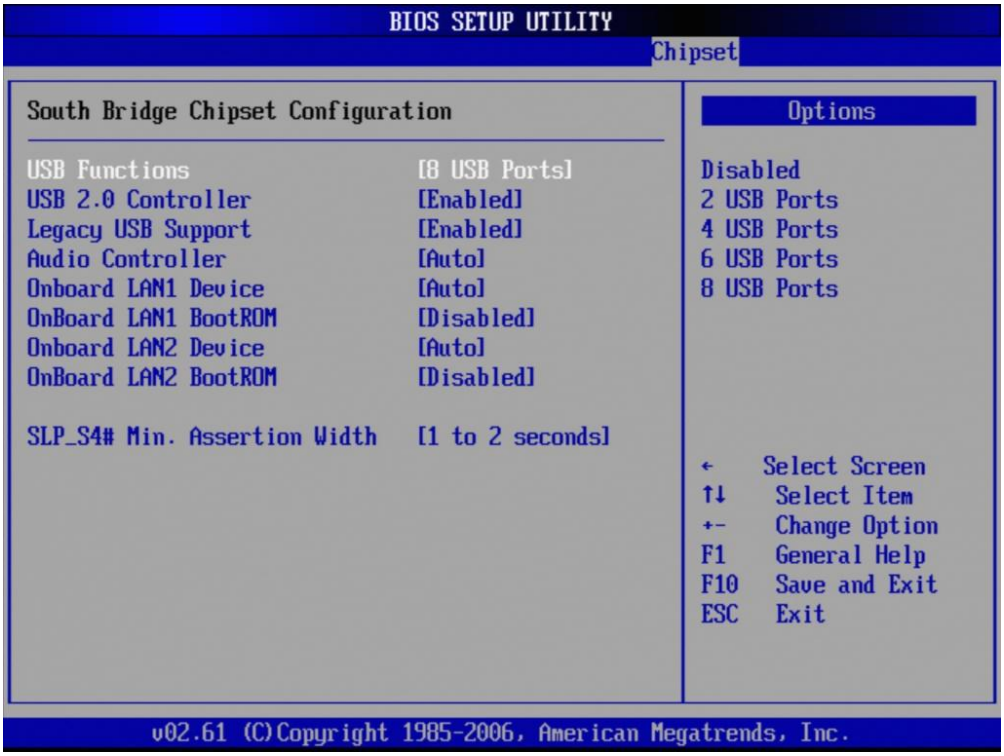
Item	Option	Description
Memory Remap Feature	Disabled Enabled**[Default]**,	ENABLE: Allow.
DRAM Frequency	Auto**[Default]**, 533 MHz 667 MHz 800 MHz 1067 MHz 1333 MHz	Configure North Bridge.
Configure DRAM Timing by SPD	Disabled Enabled**[Default]**,	Configure North Bridge.
Initate Graphic Adapter	IGD PCI/IGD PCI/PEG PEG/IGD PEG/PCI**[Default]**	Select which graphics controller to use as the primary boot device.
IGD Graphics Mode Select	Disabled Enabled, 32MB**[Default]** Enabled, 64MB Enabled, 128MB	Select the amount of system memory used by the Internal graphics device.
PEG Port	Auto**[Default],** Disabled	Configure North Bridge.

3.6.6.1.1 Video Function Configuration



Item	Option	Description
DVMT Mode Select	Fixed Mode DVMT Mode**[Default]**	
DVMT/FIXED Memory	128MB 256MB**[Default]**, Maximum DVMT	This setting is only available for WinXp.
Boot Display Device	CRT**[Default]**, SDVO CRT + SDVO	
Flat Panel Type	1024x768 18bit 1024x768 24bit**[Default]**, 1280x1024 36bit 1280x1024 48bit	

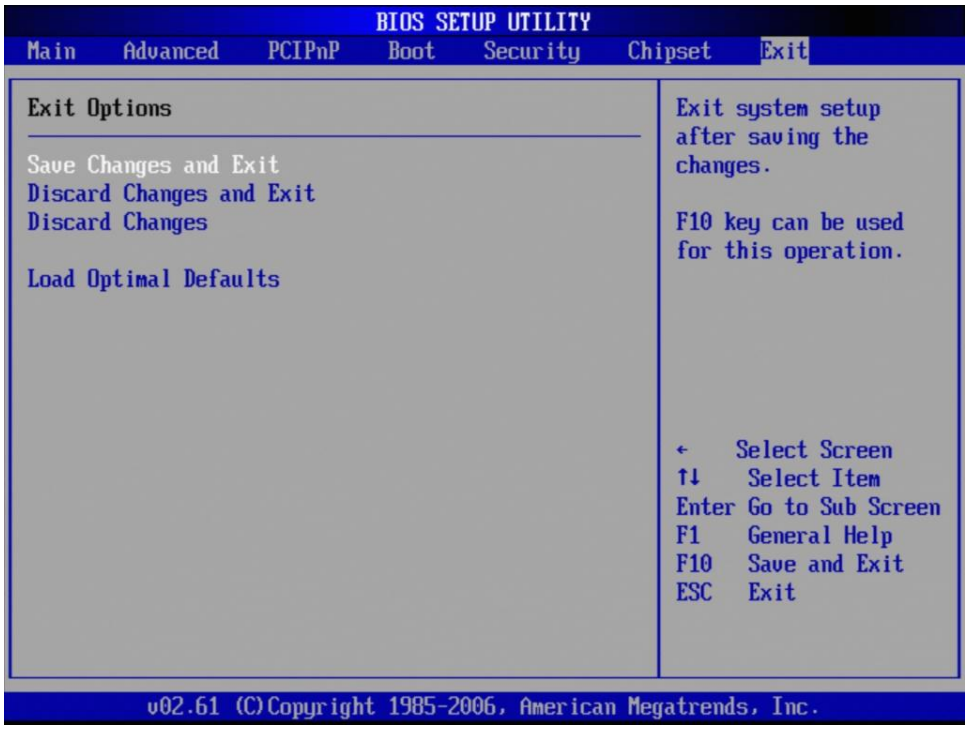
3.6.6.2 South Bridge Chipset Configuration



Item	Option	Description
USB Function	Disabled 2 USB Ports 4 USB Ports 6 USB Ports 8 USB Ports **[Default]**,	Configure South Bridge.
USB 2.0 Controller	Disabled**[Default]**, Enabled	Configure South Bridge.
Legacy USB Support	Disabled Enabled**[Default]**, Auto	Enables support for legacy USB. AUTO option desables legacy support if no USB devices are connected.

Audio Controller	Auto**[Default]**, Azalia AC' 97 Audio and Modem All Disabled	Configure South Bridge.
Onboard LAN1 Device	Auto**[Default]**, Disabled Enabled	Configure South Bridge.
Onboard LAN1 BootROM	Disabled**[Default]**, Enabled	Configure South Bridge.
Onboard LAN2 Device	Auto**[Default]**, Disabled Enabled	Configure South Bridge.
Onboard LAN2 BootROM	Disabled**[Default]**, Enabled	Configure South Bridge.
SLP_S4# Min. Assertion Width	4 to 5 seconds 3 to 4 seconds 2 to 3 seconds 1 to 2 seconds**[Default]**,	Configure South Bridge.

3.6.7 Save and exit


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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3.6.7.1 Save Changes and Exit

Exit system setup after saving the changes.

3.6.7.2 Discard Changes and Exit

Exit system setup without saving any changes.

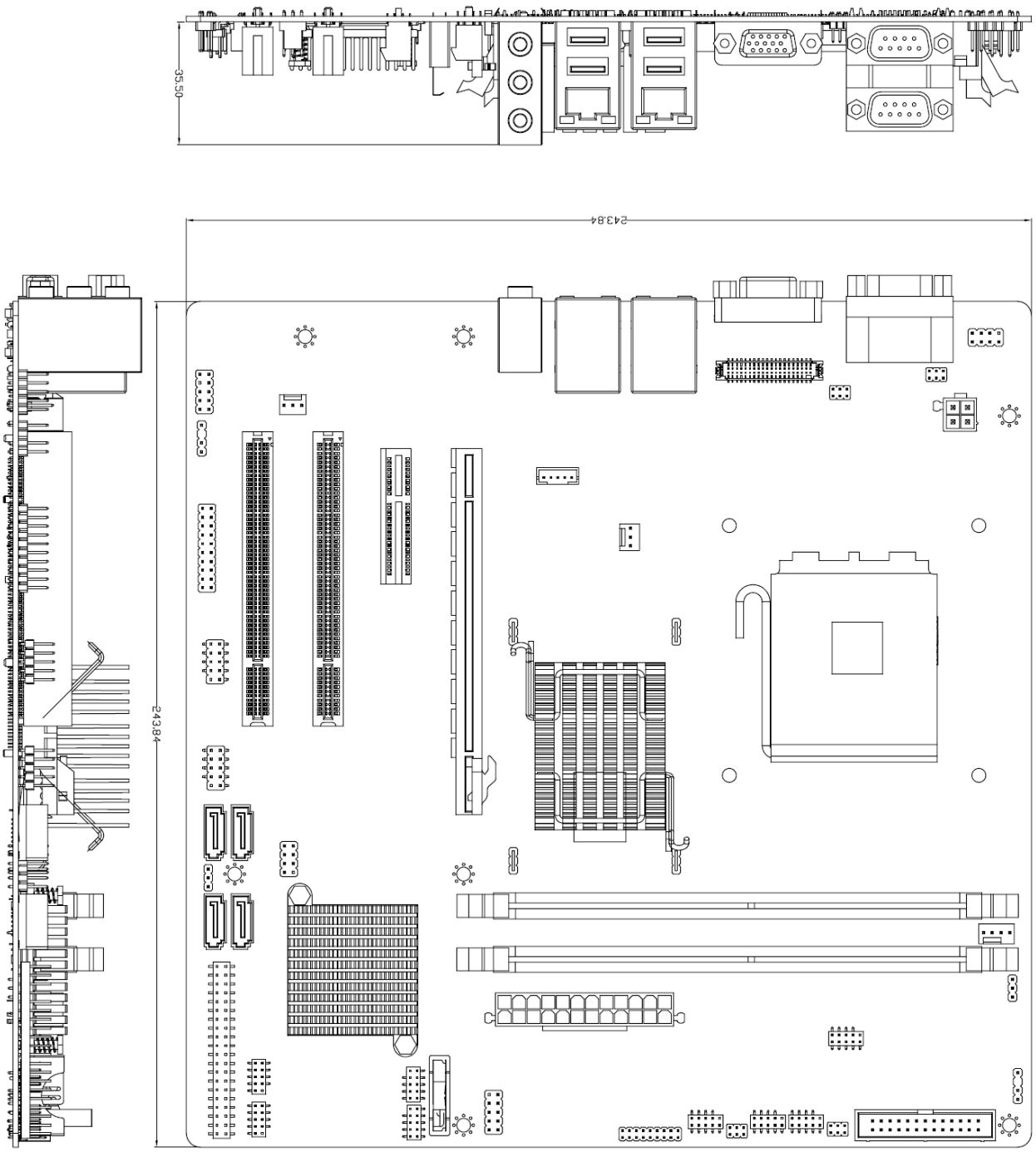
3.6.7.3 Discard Changes

Discard Changes done so far to any of the setup options.

3.6.7.4 Load Optimal Defaults

Load Optimal Default.

4. Mechanical Drawing


35.50
243.84
243.84